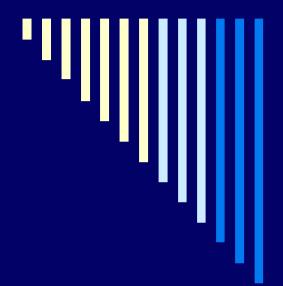


MINE ESCAPE PLANNING AND EMERGENCY SHELTERS WORKSHOP

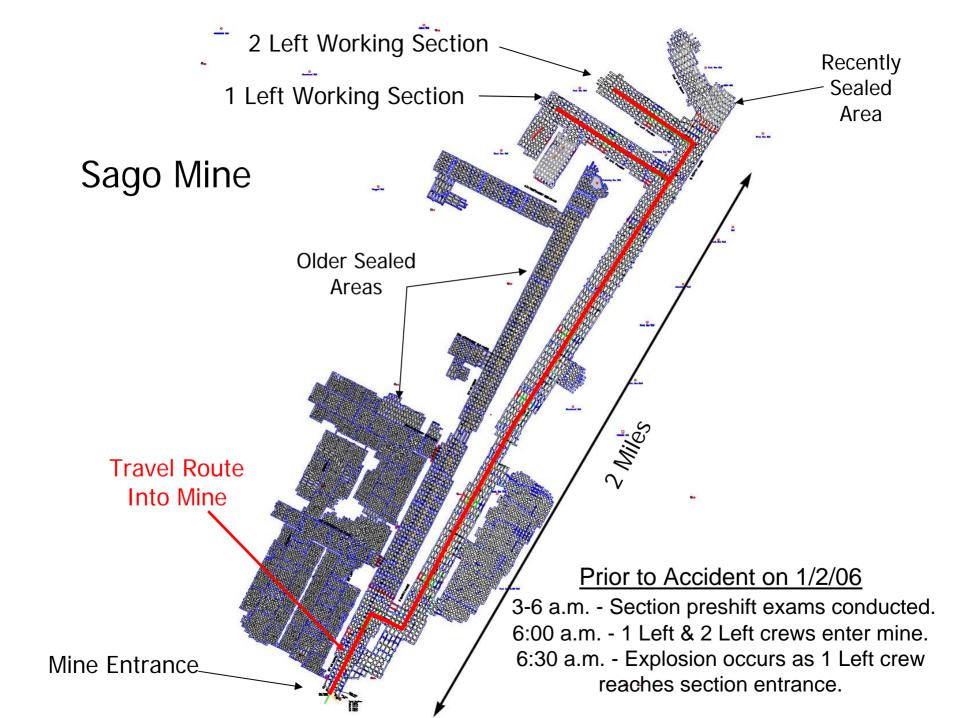
NATIONAL ACADEMY OF SCIENCES APRIL 18, 2006

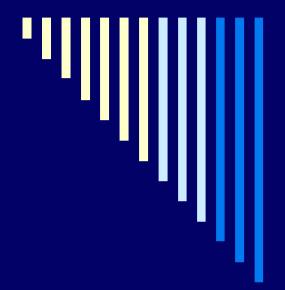


Recent History of Mine Escapes

Michael G. Kalich Senior Mining Engineer U. S. Department of Labor Mine Safety and Health Administration







Aracoma Coal Company Inc

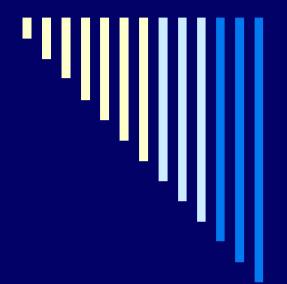
Aracoma Alma Mine #1



Preliminary Report of Accident

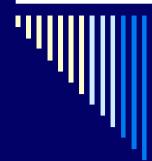
- On January 19, 2006, an underground fire occurred near the Number 9 Longwall conveyor belt drive.
- Underground mine personnel proceeded to exit the mine.
- Heavy smoke was encountered by the 12 miners exiting the Number 11 headgate development section.
- Two miners became separated from the group.
- Despite initial rescue efforts, the two miners could not be located.
- Mine rescue activities began and the two missing miners were discovered deceased on January 21, 2006.



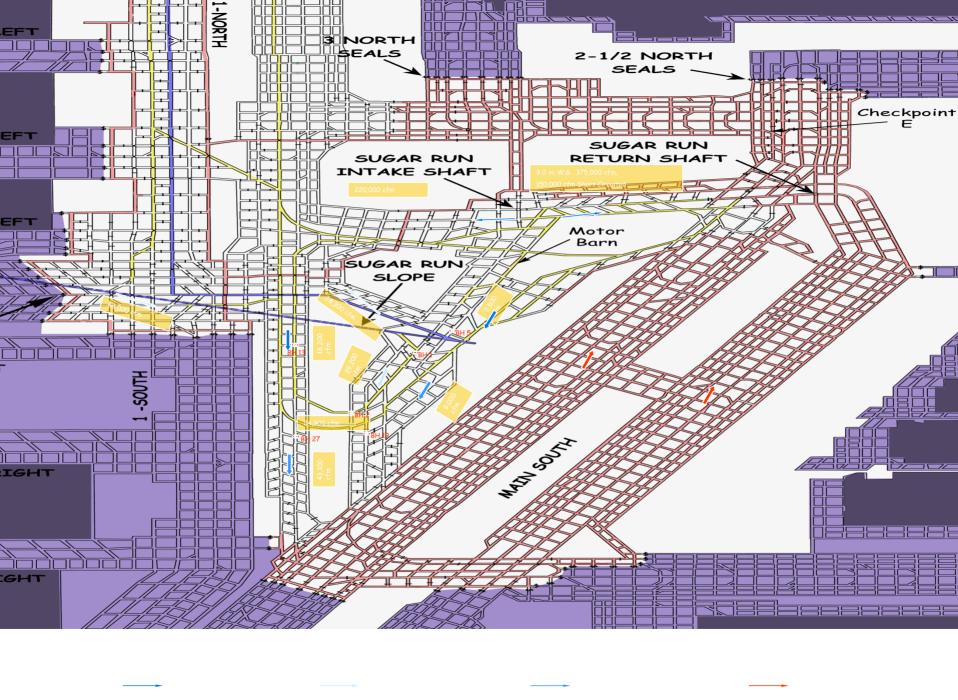


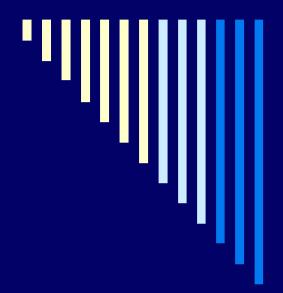
Consolidation Coal Company

Loveridge No. 22 Mine



- On February 14, 2003, an underground fire occurred near the Sugar Run Portal Slope Bottom.
- Underground mine personnel safely evacuated the mine.
- The fire reportedly started when a mine car loaded with garbage contacted the trolley wire.
- Miners at the scene attempted to extinguish the fire but were unsuccessful.
- One miner received burns to his hands and suffered from smoke inhalation.
- All mine openings were sealed and water was pumped down the slope.



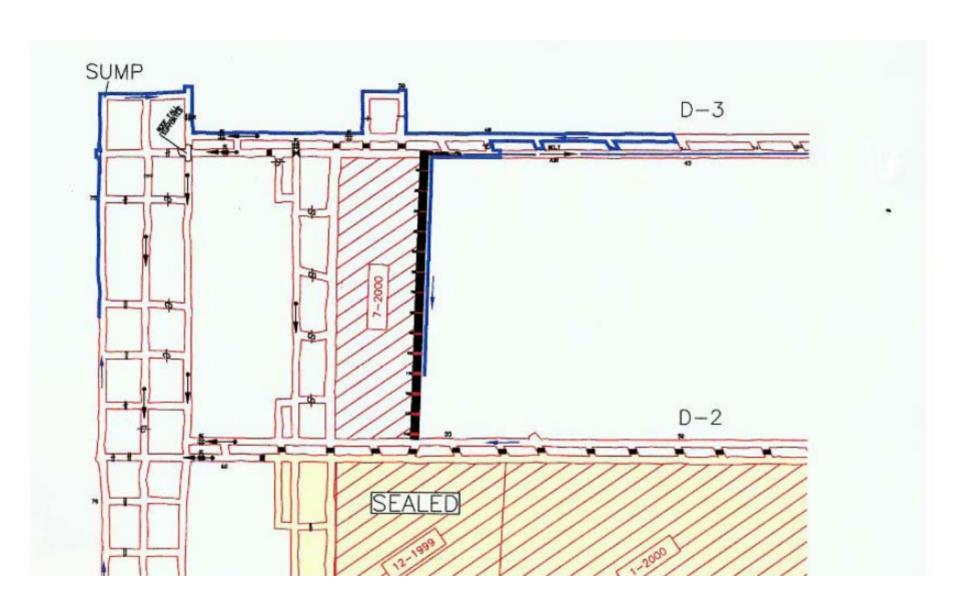


Plateau Mining Corporation

Willow Creek Mine



- On July 31, 2000, a series of four explosions occurred on the D-3 longwall.
- While attempting to extinguish flames behind the shields an explosion occurred fatally injuring two miners.
- The entire mine was evacuated.
- The surviving eight miners on the D-3 longwall received various degrees of injuries.
- Two miners were severely injured and could not evacuate with the other miners. They remained on the D-3 longwall section.
- Mine rescue teams entered the mine and rescued the two injured miners. They also recovered the two bodies.



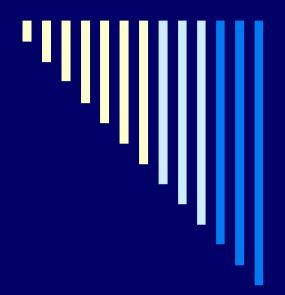


- A Personal Emergency Device (PED) system was in use at the mine.
- This system permitted text messages to be transmitted to personnel underground.
- The use of the PED system was instrumental in alerting miners underground of the need to evacuate.
- Miners working in active and remote areas of the mine at the time of the explosion were notified through the use of the PED system and all safely exited the mine.



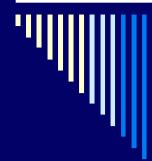


- The mine operated under an approved SCSR storage plan.
- On the longwall, 60-minute SCSR storage caches were maintained on both the headgate and tailgate and mantrips were equipped with SCSR caches.
- All miners carried 10-minute SCSR units.
- Some of the miners on the 3-D longwall donned SCSR units and were able to safely escape or wait for rescue.



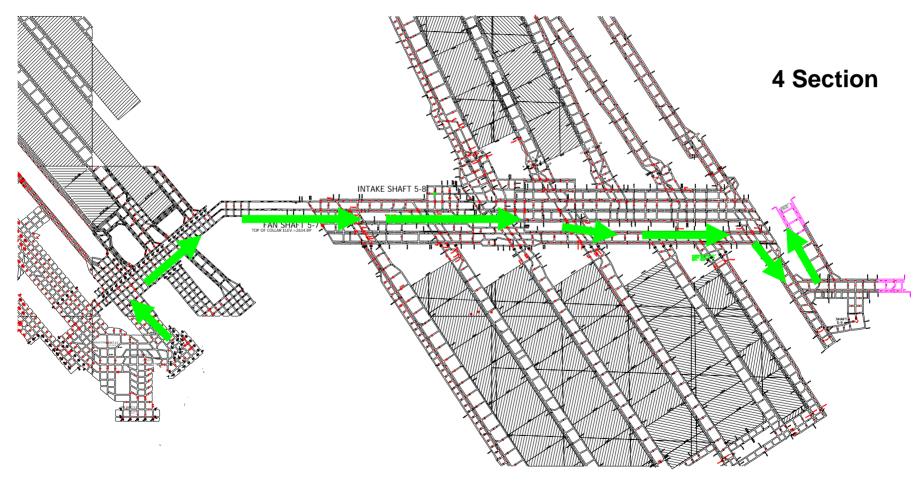
Jim Walter Resources, Inc.

No. 5 Mine

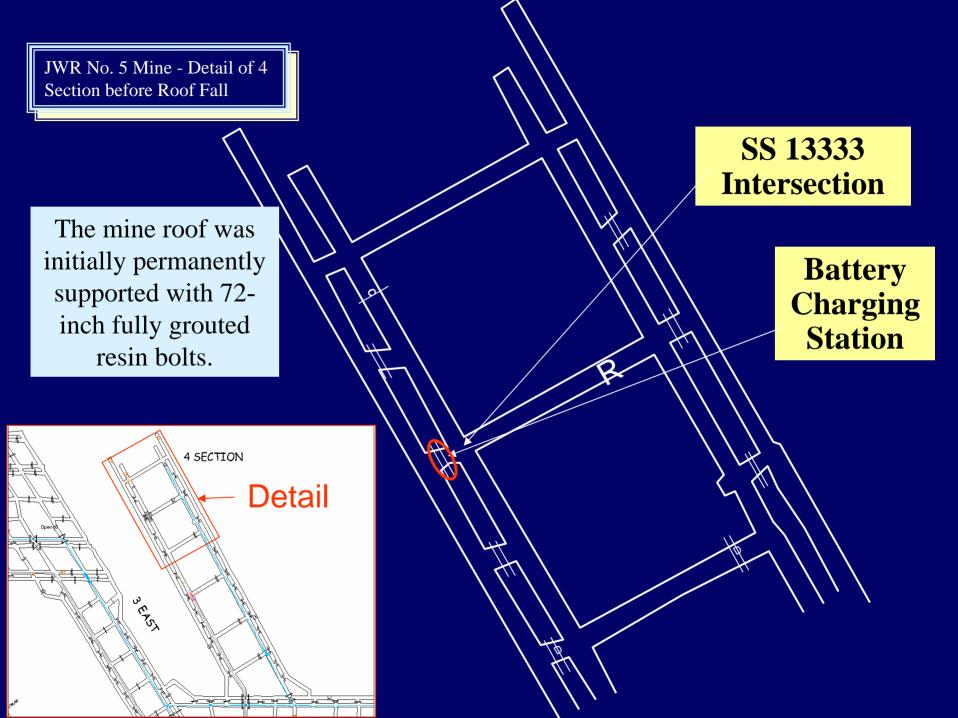


- On September 23, 2001, two separate explosions occurred on the 4 Section.
- While attempting to rescue one miner who was too injured to make it out following the initial explosion, twelve additional miners were fatally injured in a second explosion.
- Of the 32 miners inside the mine at the time of the explosions, 19 escaped.
- Mine rescue teams entered the mine and rescued one injured miner who died of his injuries the next day.

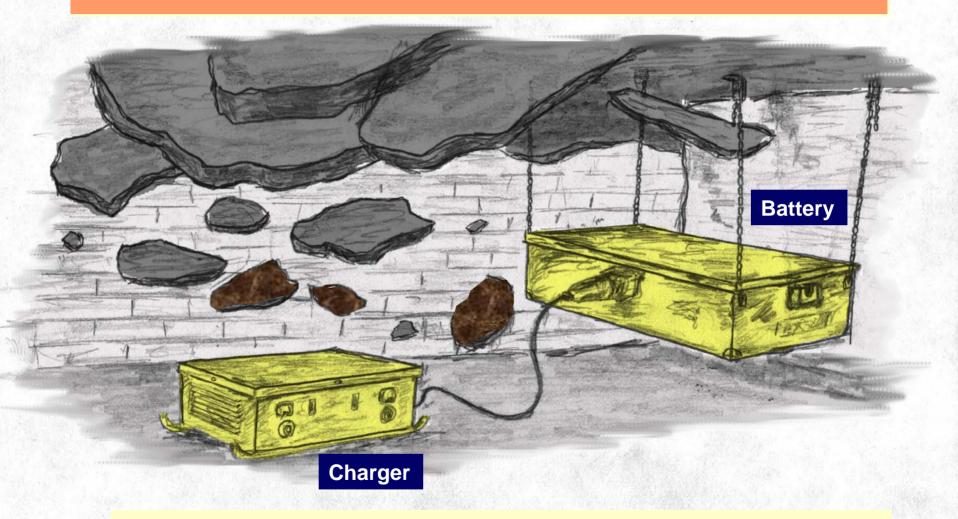
Accident Description



The afternoon shift on September 23 began at 3:00 p.m.; miners arrived on 4 Section shortly after 4:00 p.m.



Accident Description



The roof fall damaged a battery in 4 Section. Methane was released from the overlying strata.



Accident Description



Two miners donned their SCSR's and began traveling out of the section to get help. Dust and smoke impaired visibility.

At 6:15 p.m., the second explosion occurred in 4 Section

Depiction of 2nd Explosion

4 SECTION

- •The methane explosion propagated toward the faces of 4 Section, eventually involving coal dust.
- •The explosion strengthened when additional methane and coal dust became involved near the intersection of the last open crosscut and the No. 3 and No. 4 Entries.

•The second explosion occurred when methane in the No. 2 Entry was likely ignited by an energized block light system that had been damaged after the first explosion.





- Nineteen miners exited the mine.
- Mine rescue teams were organized and a rescue effort was initiated.
- A mine rescue team found one severely injured miner and three deceased miners located outby the mouth of 4 Section.
- The injured miner was transported to the surface. He later died form his injuries on September 24.



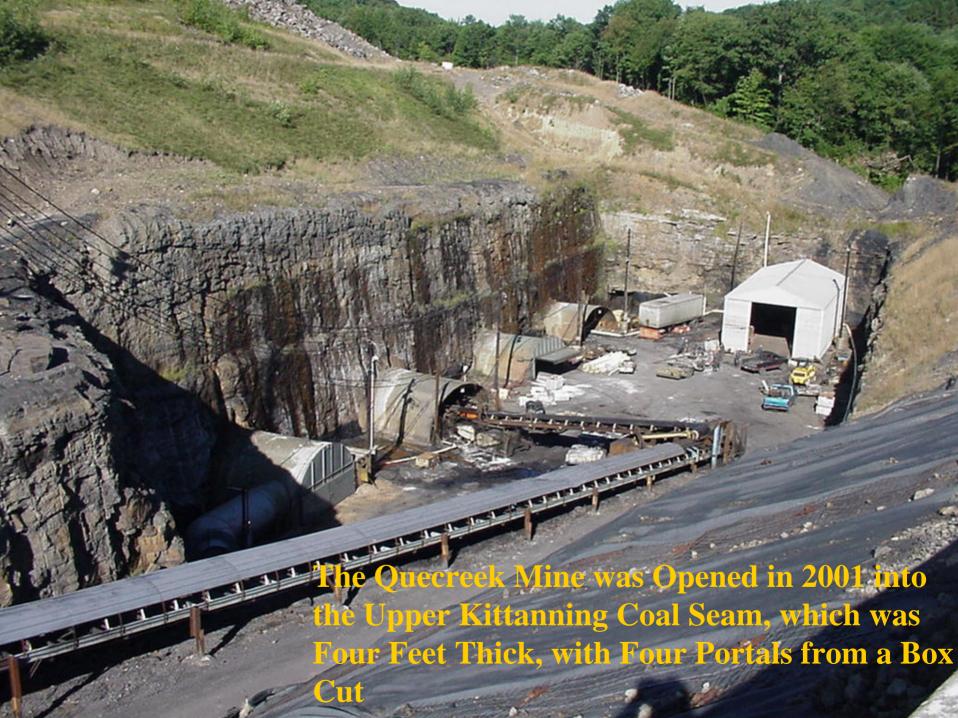
- On the morning of September 24, it was concluded that the missing miners could not have survived the effects of the explosions.
- The rescue efforts were abandoned due to fire and other unsafe conditions.
- After lengthy recovery operations, the twelve remaining victims were recovered by November 8.

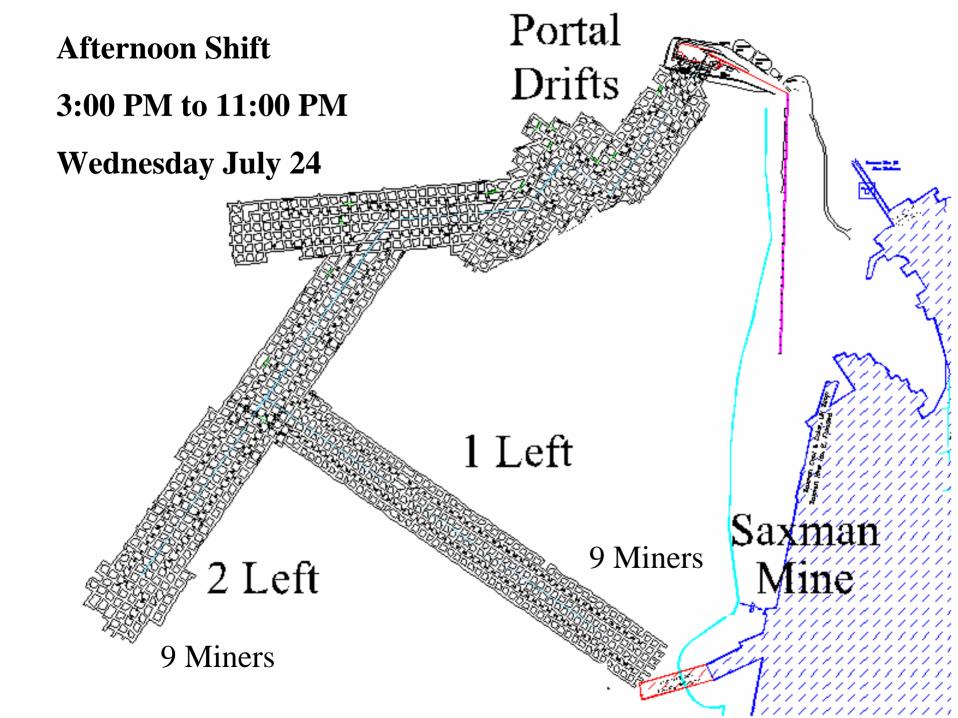


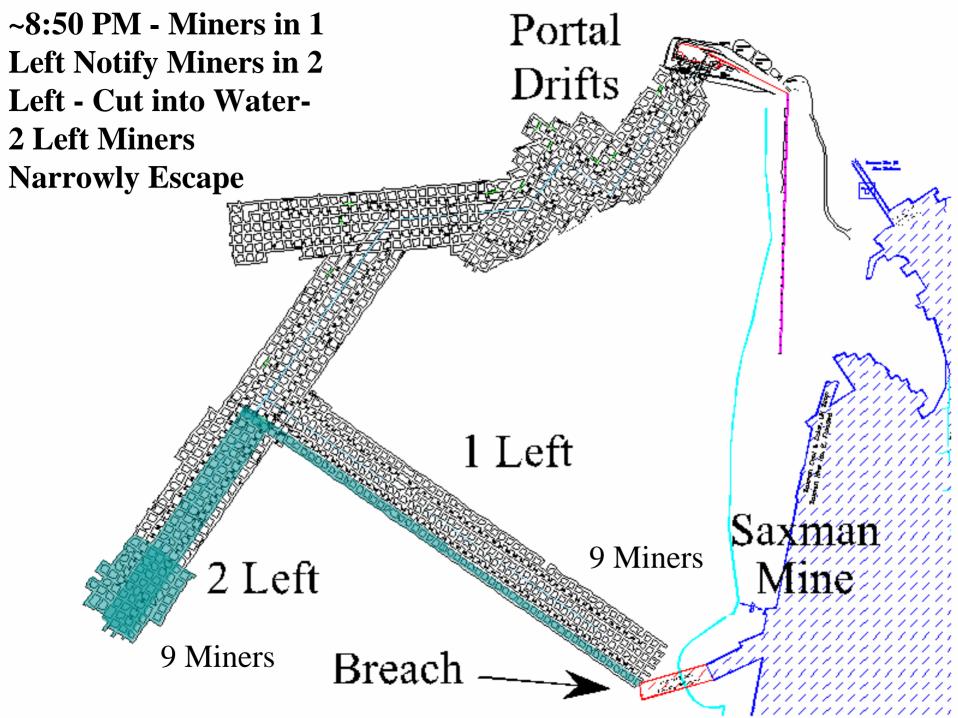
BLACK WOLF COAL COMPANY Quecreek No. 1 Mine

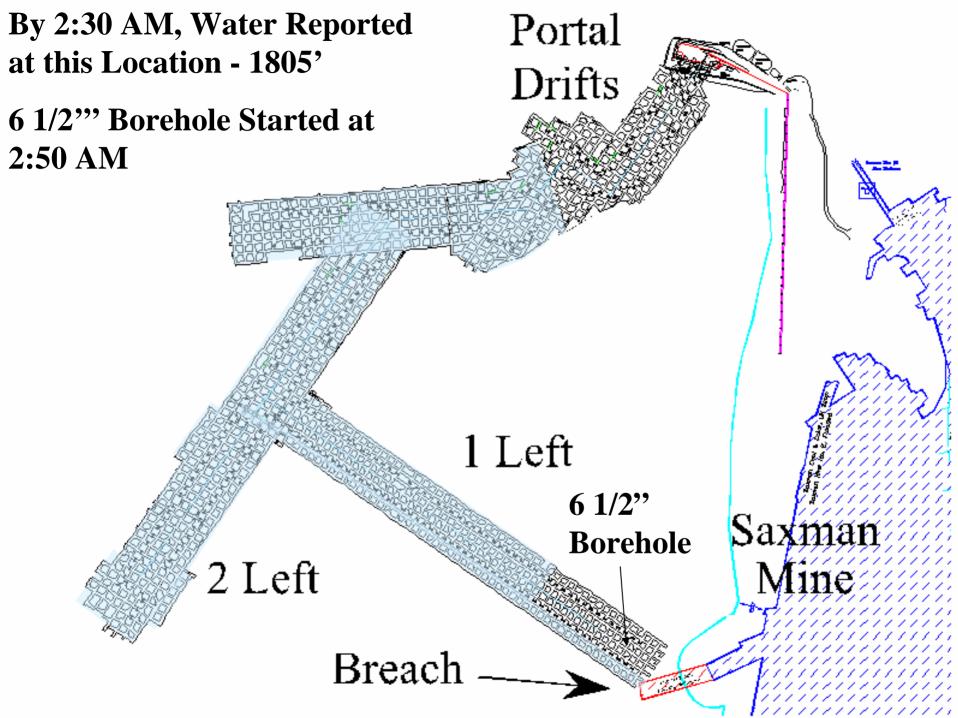
RESCUE OPERATIONS

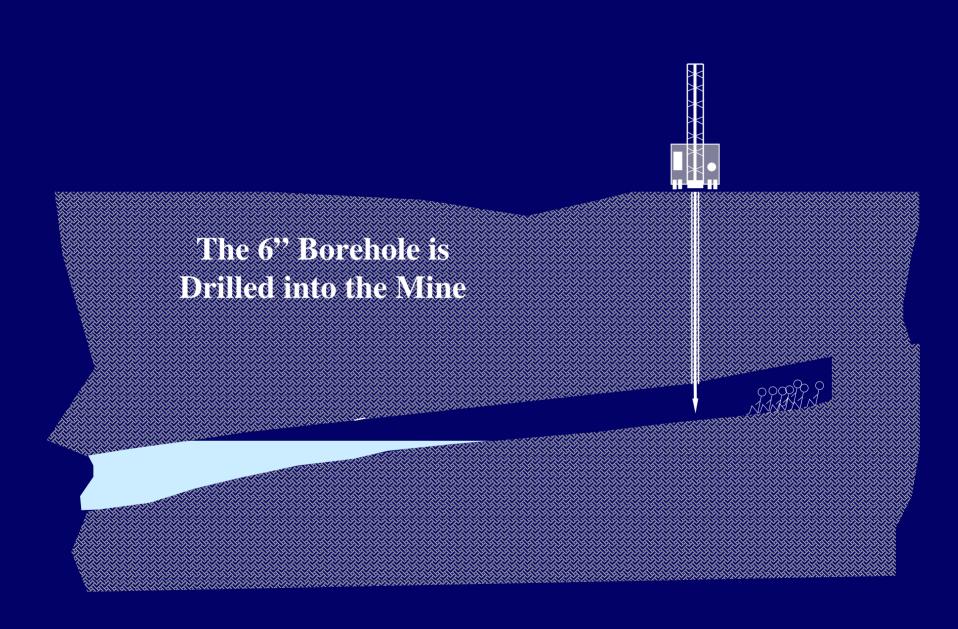
July 24-28, 2002

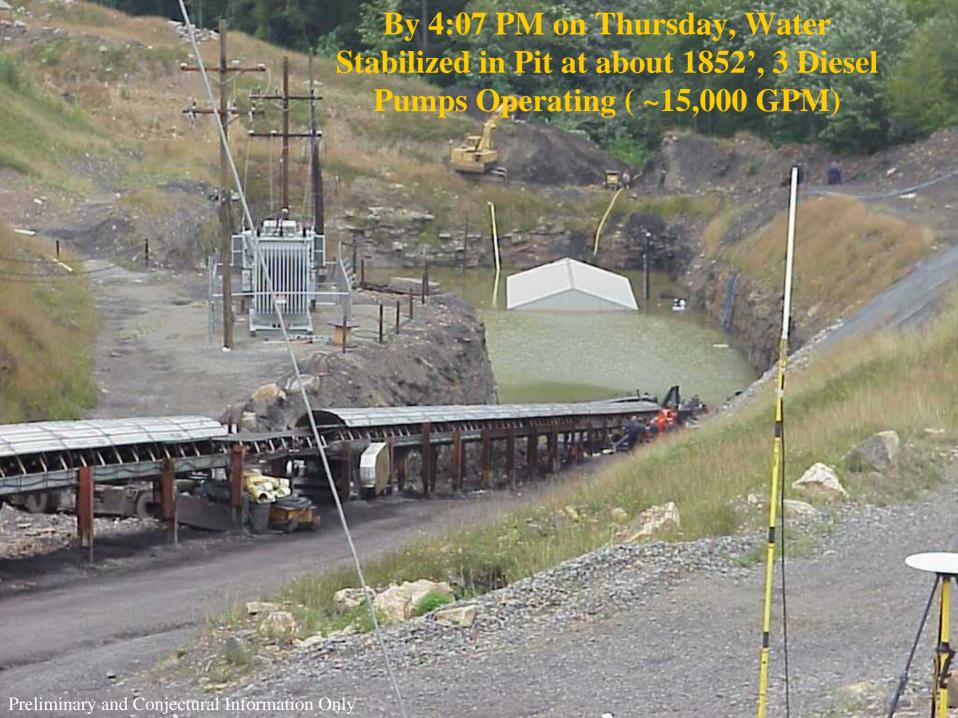


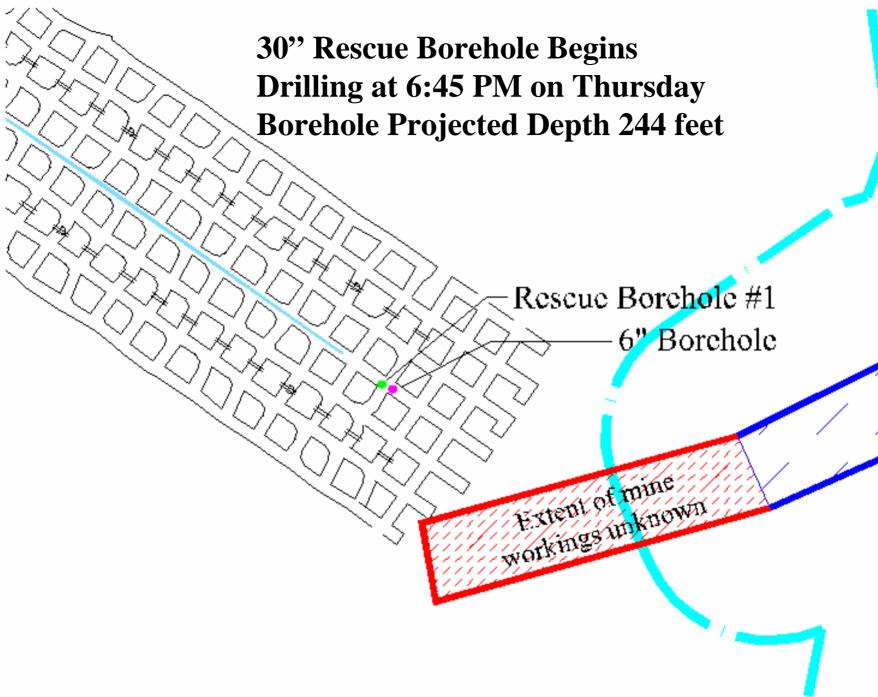


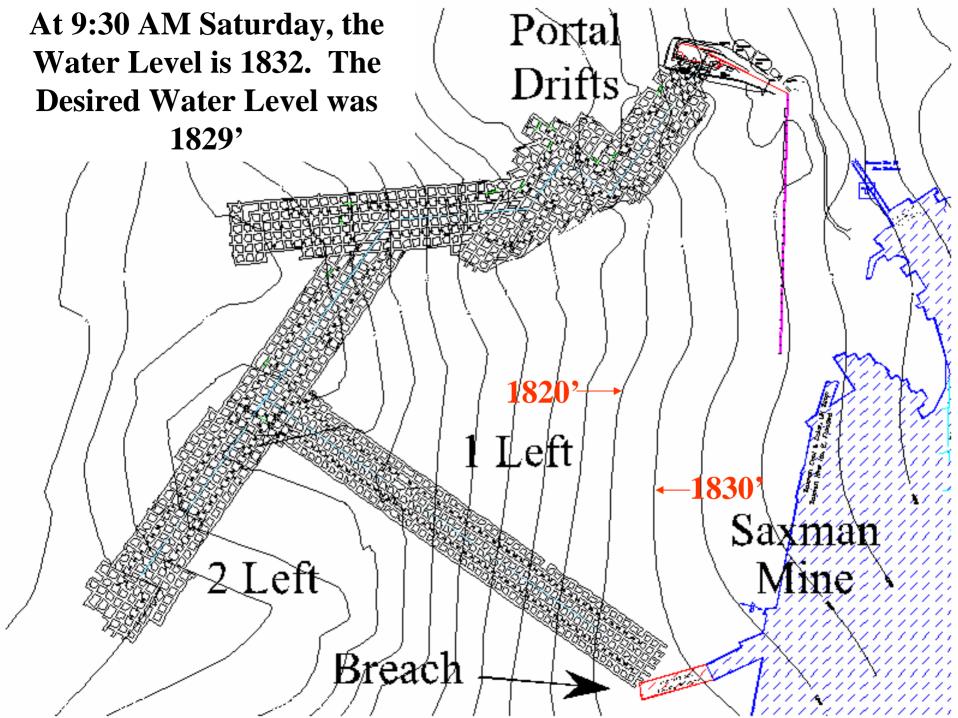


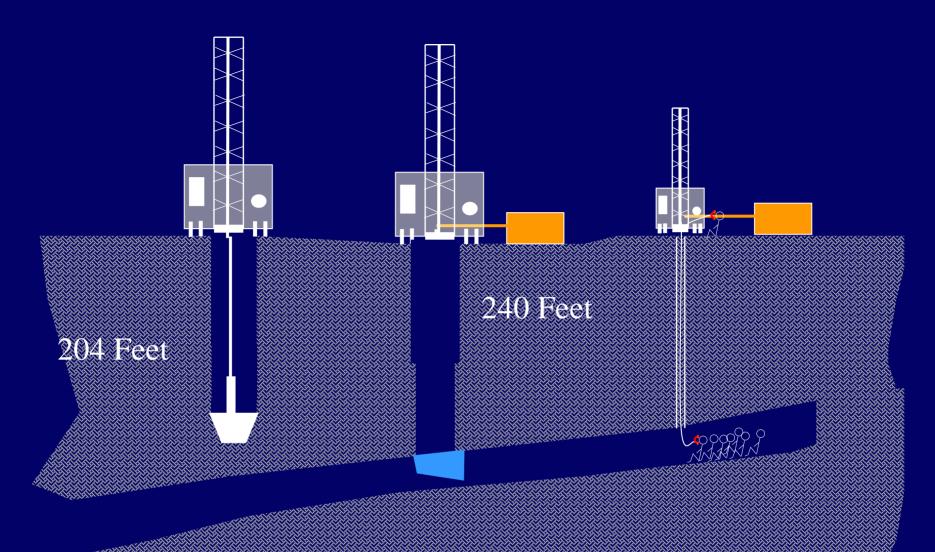












Drill Steels Removed From No. 1 Rescue Borehole







"9 for 9"

July 28, 2002, at 2:45 a.m. All 9 Miners Successfully Rescued

